

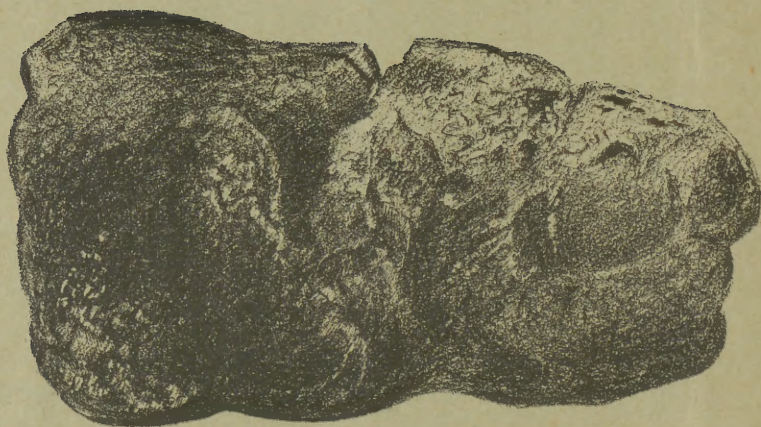
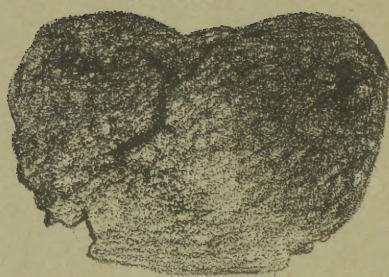
OUTTEN (W.B.)

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A Case of
Double Gastrolith.



W.B. Outten



GASTROLITH (half original size).

A Case of Double Gastrolith Removed by Gastrotomy. —Recovery.—Death by Phthisis three Months Afterward.

BY W. B. OUTTEN, A. M., M. D.,

ST. LOUIS.

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ACCORDING to the true definition of the term gastrolith, the case under consideration is not a true gastrolith, but rather a bezoar, or food-ball, as found in the abomasum and intestines of ruminants. Authorities, however, seem inclined to place all concretions found in the stomach of man under the head of gastrolith, and while the writer believes this is incorrect, still custom sanctions, and accordingly he has followed custom in the designation of this case. Edward T. Bruen, of Philadelphia, in Vol. I of the Annual of the Universal of the Medical Sciences of 1889, thus speaks concerning cases of this character: "Several cases of gastrolith in man has been reported in the current year. Hooiker, of Groningen, described the case of a druggist, aged 25 years, who had a circumscribed tumor in the epigastric region, the position of which varied on respiration and was tender on pressure. Medicines had no permanent effect upon it. Spleen, liver and kidneys were normal as to position and size. The appetite was very good and the bowels were regular. Vomiting of a small quantity of fluid containing mucus and bile, but always free from hydrochloric acid, occasionally took place. Nausea was constant and it was said that hematemesis occurred, but this was not actually observed. Gradual emaciation, followed with cachexia and indolent swelling of the left supra-clavicular and axillary glands, was noticed. The patient was examined under an anesthetic and the stomach washed out, but exploratory incision was steadily refused. The diagnosis, according to the probabilities, was cancer of the stomach. The case ended fatally and the autopsy showed that the stomach was of mormal size, contained a concretion having the outline of the organ and almost filling it. At the pyloric end lay two smaller fragments the size of hen's eggs. The weight of the tumor was eight hundred and eighty grammes—a little over twenty-eight ounces. No nucleus was present. Microscopic examination showed starch granules, cells containing chlorophyl and bundles of vessels; but nothing to determine the animal origin of the concretion. Chemical analysis showed that it contained 0.55 per cent of nitrogen. It was observed that, with the exception of Langebuch's case, described in 1884, which contained no hair, all cases observed in the human subject were composed more or less of hair. In the present case the tumor was identical in constitution with the food-balls of ruminants. Such concretions are not often found in the human stomach, though the bezoar of the abomasum and intestines of ruminants is well known, and in olden days was very highly esteemed as a remedy



against poisons and infectious diseases, being even worn as a charm. Human intestinal agglomerates are occasionally found in oatmeal-eating districts, and have sometimes been dignified by the name of avenoliths. An enterolith was found by Laugier in a human subject, the nucleus of which was formed by a piece of liquorice root. True gastroliths, however, are occasionally found in the human stomach; thus Shomborn was enabled to collect seven such cases, all of which appeared to have formed around a nucleus of hair. One of these weighed two kilogrammes."

The following notes were taken from the history of the individual while in the hospital at St. Louis. J. P., aged 52, native of Ireland, section hand; residence, Antonio, La. Entered Missouri Pacific Railway Hospital of St. Louis, June 21st, 1892. Family history excellent, parents and grandparents living to old age, no history of tuberculosis, syphilitic or cancerous trouble in the family. History of the patient discloses following: Never had any severe illness, except five years ago when lithotomy was successfully performed upon him in St. Louis; fourteen years ago had a sore on the penis, which was successfully treated, and, as it never gave any evidence of further trouble, was not considered as being an initial lesion. The first trouble which he had with the stomach occurred in the early part of October, 1891, when, while tramping through the country, he partook of a large quantity of bread and persimmons—*diospyros Virginiana*. He acknowledged that, owing to previous hunger amounting almost to starvation, he partook freely of the substance herein indicated, and even acknowledged having swallowed the persimmon seeds along with unusual quantities of bread. Several hours thereafter nausea and vomiting occurred. After an illness of ten days he got better, but after that was troubled more or less with nausea. However, he continued work until December 13th, 1891, when he partook of a very hearty meal of sardines and crackers, to which he attributes his present trouble. This was followed by excessive nausea and vomiting, which continued at varying intervals until his admission to the Vicksburg, Miss., City Hospital, December 15th, 1891. Physicians in charge of the hospital, upon examination, discovered a tumor in the neighborhood of the stomach, which was the first time the patient's attention had been called to it. He remained in the hospital two months, and then resumed labor and continued to ply his avocation until June 21st, 1892, when he was admitted into the St. Louis Hospital of the Missouri Pacific Railway. During the interim from February, 1892, until June, 1892, he had comparatively little nausea and no vomiting; was nauseated only when he ate too heartily or drank too much whiskey, and then only for a limited time. Examination at that time revealed a hard and seemingly nodular tumor six or seven inches long, four or five inches broad, and almost as thick, freely movable to various portions of the abdomen. In the standing position the tumor can be felt below the umbilicus, by pressure could be carried to the right or left side, and almost forced down to the pubis, but with an invariable tendency to retreat into the concavity of the diaphragm in the left hypochondriac region. In the dorsal decubitis it dropped readily into the left hypochondriac region, but was still plainly manifest, projecting below the ribs. Auscultation and percussion of the chest showed normal

heart and lungs. The urine was normal with acid reaction; no indication of trouble with other organs. The patient constantly complained of heavy dragging pains about the lumbar region, loins and umbilicus; no nausea existed and no pain was evinced upon pressure; when examining the tumor. Diagnosis: Splenectopia or floating spleen. Reasons for opinion: Unwonted mobility of tumor, along with a tendency to recurrence to left hypochondriac region, painless under inspection, freedom from other organic lesions, and residence in malarial country. Patient entered the hospital and was put under observation and treatment from June 21st, 1892, until July 14th, 1892. Iodides and chalybeates were prescribed. He did not complain of nausea nor did he vomit after his entry, but complained continuously of dragging pains around the abdomen, lumbar region and loins. The appetite was good; he ate three meals a day regularly, partook of whiskey freely and with relish when given it; used tobacco constantly and without any apparent detriment. He was excessively constipated, which he stated had been his condition for the past two years, having passed as many as eight days without evacuation of the bowels. Since the tumor developed, the mental condition has remained unchanged. He seemed cheerful and talkative, slept well, and the only serious complaint was the dragging pains, which, at times felt, as he averred, like tons of weight, and in consequence of which he had repeatedly and eagerly sought operative interference, and said he was willing to undergo any operation. He had not lost flesh in the past five months, and presented an unruffled countenance, browned by exposure. Operation was determined upon for the purpose of accomplishing for this condition of supposed splenectopia the adhesion of the visceral peritoneum of the spleen with the parietal peritoneum as high up in the cavity of the diaphragm as possible, and if a word may be coined, splenorrhaphy instead of splenectomy ~~was~~ performed. A successful case had been performed in this city, where an incision was made through the left wall of the abdomen, parallel with the lower border of the left, tenth rib, extending from the linea semilunaris, posteriorly to the edge of the quadratus lumborum muscle of that side. Through this opening the spleen was reached and a piece of aseptic gauze was thrown around the pedicle of the floating spleen, which was then brought into the opening. The wound and the surface of the exposed spleen were packed with aseptic gauze. The gauze holding the pedicle was rendered taut and held in position by a broad compress of gauze, over which was tied the gauze which held the pedicle of the spleen projecting from the wound. A seemingly excellent result was accomplished, the woman upon whom it was performed gaining fifteen pounds the first month; but some ten months afterwards died of cancer of that organ. This operation was performed by Dr. W. A. McCandless of this city, and it was determined that this should be the operative procedure in this case, except that the incision should be made through the linea semilunaris. Assisted by Drs. Dalton, McCandless, Vasterling and others, the parts were shaved, scrubbed and washed in alcohol and an aseptic condition in the field of operation was made. The patient was put under anesthesia, ether being the anesthetic used, and an incision 6 or 7 inches long was made through the linea semilunaris. After the cavity of the abdomen was

entered, the tumor was readily reached but it was too large to force from the cavity. It was then determined to enlarge the opening, and an incision was made extending from the top of the cut in *linea semilunaris* transversely across to the *linea alba*, thus making a large triangular opening in the parietes and exposing the tumor. Upon first inspection the tumor appeared to be posterior to the stomach, but on bringing the tumor out of the cavity, the stomach was found greatly distended, and upon closer examination the tumor was found to be in the stomach. Gastrotomy was at once determined upon and an incision about six inches long was made transversely through the walls of the stomach, exposing a large mass of a yellow clay color, covered, in places, with dark carbonaceous matter. This proved to be a gastrolith over five inches in length, conical in shape, and about five inches in its broadest portion. The stomach was now held in position, so as to debar the possibility of any of its fluid contents entering the abdominal cavity. Ten Lembert's sutures were applied along the incision. After suturing, it was noticed that a greater portion of the stomach seemed to lie in left hypochondriac region, and an endeavor was now made to pull this in position, when it was discovered that another foreign body was in the stomach. It was deemed advisable to make a fresh incision in the stomach in preference to cutting through the sutures already supplied, so gastrotomy was again immediately done. An incision equal in length and parallel to the former was made, and a gastrolith similar in color and smaller in size to the first was removed. This cut in the stomach was likewise closed up with Lembert's sutures. It was noticed that great difficulty existed when endeavoring to bring the splenic end of the stomach in view, clearly owing to the attachment of the gastro-splenic omentum of the stomach, but by pressing on the stomach behind the gastrolith, it was forced in situ.

Here was plainly a surgical mistake. It would certainly have been better had both concretions been removed from the same opening, but it would have been suicidal to have attempted to remove the sutures already made, as the needle holes would have been difficult of ascertainment, and probably septic conditions engendered. I believe it is related of DesCarte that he had a cat and a kitten, and desiring them to pass from one room to another through a small partition, he very profoundly suggested to the carpenter that he make through this partition a big hole for the cat and a small hole for the kitten; this might not have been good judgment, but, in any event it certainly met, in an extravagant manner, the fullest and completest indications. The patient rallied readily on the morning of July 16th, 1892, twenty-four hours after the operation; temperature 99.2; pulse 90. He progressed favorably until the eighth day when pneumonia developed in the lower half of the left lung. On August 16th, 1892, the patient was convalescing and walking around the wards, but dullness of the left lung and cough remained. From this period he gradually went into a phthisical condition, both lungs became involved and he died October 18th, 1892, just three months and three days from the date of operation. I am free to confess that, where any extended abdominal operation is to be performed, I believe it is poor judgment to use ether, for I believe that the ether was the cause of the trouble which followed. Granting that metastatic

troubles frequently arise from extended abdominal operations, still I believe that the exciting cause was a bronchial trouble engendered by prolonged use of the ether.

The following will give a comparative idea of the weight and size of the gastroliths removed, which were weighed in a half hour after their removal. Their combined weight on removal was 10,560 grms. Some three or four days after their removal, Dr. J. A. Close made the following report of their examination. Specimens received from Dr. Outten consisted of two masses, the shape, weight and dimensions of which were as follows:

Shape—The shape of each piece was conical, the apex of the larger being somewhat flattened.

Weight—(a) of larger mass 396.8 grms. (14 oz. Avoir). (b) of smaller mass 220.8 grms. (7.8 oz. Avoir).

Length—(a) of larger mass 12.5 em. (5 in.) (b) of smaller mass 6.9 em. ($2\frac{3}{4}$ in.)

Circumference—At base of each 27.5 em. (21 in.) The base of each mass was smooth and the edges of the base rounded showing the effects of attrition of the masses while in the stomach.

Color—Mottled from fawn to dark brown, and in places almost black; when sawed through longitudinally the color of the outer cut surface was light yellow.

Odor—That of the stomach contents during digestion—no fecal odor was perceptible.

Nucleus—No nucleus nor any mass resembling a nucleus could be found; no hairs were found; the external position of the depth of 5 to 8 mm. (1-5 to 1-3 in.); was granular and friable; the central portions contained masses of vegetable tissue with muscular fibres, etc.

CHEMICAL EXAMINATION.

Reaction—Fragments taken from both the surface and the central portions of both masses, shaken with freshly distilled water, free from ammonia, showed neutral reaction. Hydrochloric acid absent (Phloroglucin & Vanillin Test.)

Lactic Acid—Absent.

Peptones—Absent.

Pepsin—The aqueous infusion (10 grms. of the mass triturated with 50 grms. of distilled water) concentrated to $\frac{1}{2}$ over sulphuric acid at a temperature of 50 C. and acidified with H.Cl. 0.08 per cent had no digestive effect upon coagulated albumen.

Peptones—Absent.

Skatol—Absent.

Starch—A well marked reaction with iodine.

MICROSCOPICAL EXAMINATION.

1. The external granular friable layer showed: (a) *Sarcinae ventriculi* (very numerous); (b) Starch granules, especially those of potato starch very numerous; (c) Numerous fat globules; (c) Cells of *saccharomyces cerevisiæ*.

2. The central portion of the mass showed in addition to the above: (a) Compressed masses of vegetable connective tissue, including numerous vessels; (b) Striated muscular fibres—The striation was generally indistinct; (c) No blood corpuscles either red or white, could be distinguished; (d) Squamous epithelium; (e) Numerous elastic fibres; (f) Groups of fatty acid crystals were quite numerous.

There was nothing discovered in the mass which could account for the coherence of the constitution. (Signed) J. A. CLOSE, M. B.

From the foregoing report the entire absence of a nucleus will be noted. Had there been one, the consequent formation of this concretion would have been easy of explanation. What condition must have existed in order to render it possible for the formation and consequent solidification of these concretions? Medical practitioners in the Southern and Western states are familiar with the tendency of the persimmon, the *diospyros virginiana*, when its seeds are swallowed, to become impacted in the intestinal tract, aprticularly in the rectum. Upon one occasion the writer removed from an impacted rectum a handful of persimmon seeds which thoroughly and completely blocked up the gut's exit. Upon investigation this experience will not be found entirely exceptional, as the writer has heard of many similar instances. Dr. W. P. King relates the following instance: A boy, aged 14 years, was brought to him for treatment. Upon full investigation a tumor was found in the stomach. The patient gave a history of having swallowed persimmon seeds. Professional complications arising regarding the date of operation, massage of the stomach was ordered, and, after some two weeks of treatment, the tumor disappeared and the seeds were voided in the natural way. This case was only of a months duration, and nausea and fever persisted from the beginning. Upon one occasion I was called in consultation to see a negro man who had a circumscribed swelling just below the epigastric region; upon inquiry it was ascertained that he had freely partaken of persimmons, many of which he had swallowed whole. Violent emesis was present and a tense tympanitic abdomen, along with a temperature of 104° F. Rectal injections were ordered and grain doses of calomel given. Forty-eight hours afterwards the swelling disappeared under free catharsis and a goodly number of persimmon seeds passed. No further trouble occurred. I have heard of similar cases several times, and it is to be regretted that more attention has not been paid to the subject, for I believe that if the records were searched many similar cases could be found, some of which terminated in death. In the case under consideration, the first trouble which the patient had was in October, and, as stated by him, he was almost starved, when he consumed an unusual quantity of bread along with the persimmons, many seeds of which were undoubtedly swallowed. The fruit of the persimmon is a globular berry about an inch in diameter with a short foot-stalk, and the permanent four-lobed calyx at the base; green, smooth, and from four to six celled, each cell containing a single flat, ovate, oblong seed. The size of the seed varies in length from a half inch to six-eighths of an inch, and about a quarter of an inch broad. The unripe persimmon has a short remnant of the style attached,

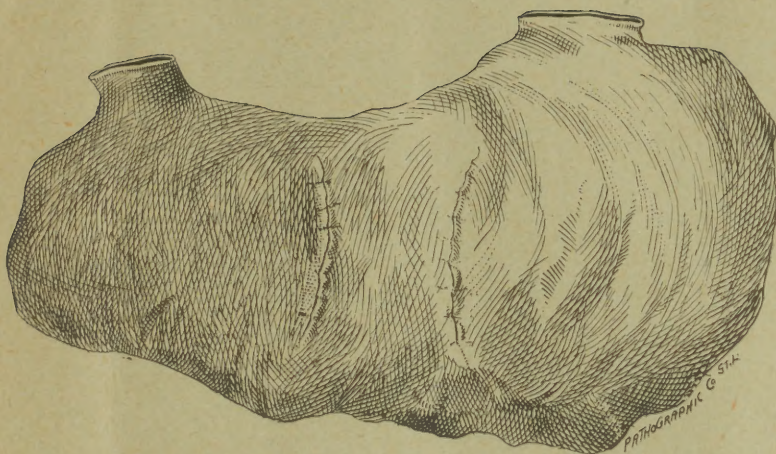
is of a pleasant but weak odor, contains a viscid juice of a very astringent taste, which is retained when carefully dried, but becomes acidulous sweet after the fruit has been exposed to the frost. The unripe fruit contains tannin, and appears to be identical with the tannin in galls. Situated in pericarp of the fruit, fibrous septums from the seed cells, and possess considerable tenuity. Since the examination of the gastroliths by Prof. Close, six persimmon seeds have been removed, and sticking through various portions of the mass, pointed ends of the seeds can be seen. In the examination made by Dr. Close, each gastrolith was bisected, and along the cuts thus made nothing is to be seen; but upon portions broken, the seeds can be seen. Most of the seeds appear grouped around the center of the gastroliths, none of which appear upon its periphery, probably owing to the compression of the stomach itself on the mass and the consequent covering with mucus and other substances.

My conception of the manner in which the concretions were formed, is this: the patient simply gorged himself with bread, and the glutinous thready substance of the pericarp of the persimmon rendered cohesion possible, along with an inability upon the part of the stomach to act on so extensive a mass. What influence the tannic acid might have had, I am unable to state; but I believe that some influence was produced. Again, I believe that the concretion was never added to after its first formation; that its original mass was simply rolled and compressed by the action of the stomach. The first trouble commenced in the early part of October, 1891, and the tumor was not discovered until December 15th, 1891, the concretion thus existing in the stomach for nearly nine months, when it was removed in July, 1892. This, I believe, is the only recorded instance of the removal of a food concretion from the living subject of so extensive a size and of its peculiar constituent elements. The remarkable elements of this case were: the good physical condition of the patient, the absence of nausea; while in St. Louis Hospital for nearly a month his ability to eat any and all kinds of food; was always ready to take stimulants of any kind, which seemingly produced no effect upon him as far as irritation of the stomach was concerned. His mental condition was excellent; he was cheerful and talkative; he slept well; and at no particular time was there any distinct symptom which pointed toward an involvement of the stomach. No pain was evinced upon examination, and he was apparently a strong and hearty man, aside from the tumor, and only complained of the dragging pains about the loins, back and across the abdomen. The ability of the receptive organs to adapt themselves to adverse conditions was plainly manifest in this case, and it is surprising to note that with so large a mass in his stomach, 19,560 grains, he continued to partake of food with relish and gave no evidence of any stomachic trouble.

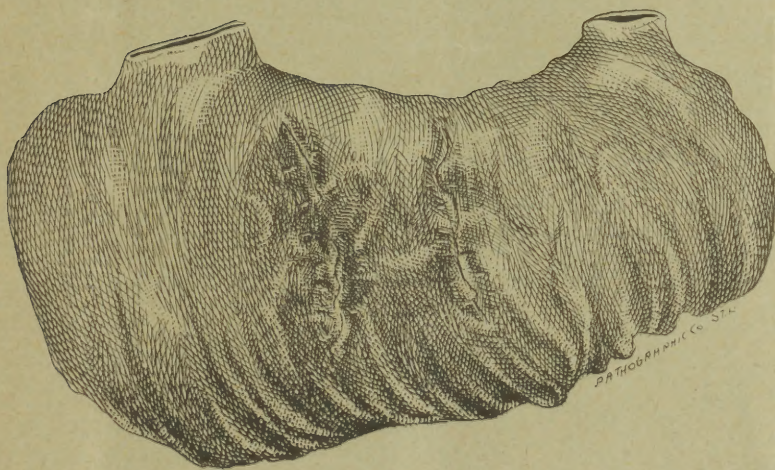
RESULT OF THE POST-MORTEM.

Both lungs were found involved, containing cavities and filled with tuberculous material. Heart somewhat contracted, free from clots, with slight deposit of fat upon the right side. His spleen, liver and kidneys normal (there has never been any indication of trouble with the kidneys up

to the date of death of this individual). Stomach in normal position, excessively contracted; the great mesentery was attached to the cuts in the anterior parities, the parietal peritoneum being united with the mesentery along the entire line of incision; a few large adhesions plainly show the result of inflammatory trouble. Stomach bound down posteriorly by adhesions; its anterior surface presented the line of the stitches which were made in the two incisions from which the gastroliths were removed. Black ferrated silk was used to make these stitches. They had been covered and thoroughly encysted by the peritoneum and were plainly seen through the transparent covering in the stomach. There had been complete and perfect union of the walls of the stomach; no line of union being observable to the eye; but upon removal of the stomach, where the internal lining had been doubled upon itself there was a plain line of cicatritial tissue not even covered by the vili composing the mucus membrane of the stomach. The union, however, had been complete in detail, as far as the walls were concerned.



External Wall of Stomach and Suture Lines.



Internal Wall of Stomach and Suture Lines.

